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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/549,359	09/14/2005	Tomoyuki Hosokawa	01165.0945-00000	5444

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Washington, DC 20001-4413

EXAMINER

MATZEK, MATTHEW D

ART UNIT	PAPER NUMBER
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1794

MAIL DATE	DELIVERY MODE
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07/24/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/549,359	Applicant(s) HOSOKAWA ET AL.	
	Examiner MATTHEW D. MATZEK	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 May 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,5,6,10 and 12-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,5,6,10 and 12-17 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 September 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>3/08</u> . | 6) <input type="checkbox"/> Other: _____ |

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5/5/2008 has been entered.

Response to Amendment

2. The amendment dated 5/5/2008 has been fully considered and entered into the Record. Claims 4, 8, 9 and 11 have been incorporated into claim 1. Claims 1, 2, 5, 6, 10 and 12-17 are currently pending. The previous rejection made in view of Perkins et al. and Bansal et al. has been withdrawn as the applied references fail to provide for polyolefin resin mixed with polyester resin in a discontinuous phase in the longitudinal direction of surface of the extremely fine fibers.

Claim Rejections - 35 USC § 103

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 1, 2, 5, 6, 10 and 12-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Perkins et al. (US 5,178,931) and Bansal et al. (US 6,548,431) and Unitika (JP 07-207566). Examiner has relied upon a machine translation of the JP document for this Office Action. A full translation will be provided along with the next office action.

a. Perkins et al. teach the creation of a nonwoven laminate comprising three layers, the first and third layers comprising filaments of diameter in excess of 7 microns and the

second layer consists of microfibers with average diameters between 0.1 to 10 microns. The layers of the laminate are pattern bonded by the application of thermocompressive bonding (abstract). The first and third layers, which correspond to claimed filamentary layer, may be made of polyester (col. 2, lines 56-63) and may further contain polyolefin (col. 5, lines 55-60). The second layer may be made of a mixture of polyethylene or polypropylene and polyester (col. 5, lines 47-60). Perkins et al. fail to teach the quantity of each polymer to be used in the second layer.

b. Bansal et al. teach a process for making a nonwoven sheet of melt spun fibers comprising at least 30 weight percent polyester having a viscosity less than 0.62 dl/g (abstract). The preferred viscosity of the polyester ranges from 0.40 to 0.60 dl/g (col. 2, lines 37-48). The polyester may be blended with polyethylene (col. 3, lines 12-20). Table 1 demonstrates that the invention of Bansal et al. have water pressure resistances (hydrostatic head) ranging from 3.73-4.12 kPa (conversion done by Examiner). The fibers of the nonwoven sheet are preferably 50 weight percent polyester (col. 11, lines 38-40) and at least one other separate polymer component. The polyester and the “at least one other separate polymer component”, polyethylene may be arranged in a “sheath-core” orientation with the polyester serving as the core and polyolefin as the sheath surrounding said core (col. 11, lines 38-55). The meltspun fibers of Bansal et al. are on the same diameter scale as those of the second layer of Perkins et al. (col. 4, lines 3-9). The basis weights of Bansal et al. exceed those required by the instant claims (Table 1). Adding the Grab Tensile strengths in the Machine and Cross Directions provided in Table 1 and divided this value yields tensile tenacities that exceed those claimed.

c. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have increased the hydrostatic head of the combined invention to at least 5.2 kPa, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233. This is especially true in arts where the variable is one routinely optimized and its factors for variance are understood.

Hydrostatic head is such a variable as evidenced by the various disclosures of record.

d. Since Perkins et al. and Bansal et al. are from the same field of endeavor (i.e. nonwoven fibrous structures), the purpose disclosed by Bansal et al. would have been recognized in the pertinent art of Perkins et al.

e. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the middle layer of Perkins et al. with the microfiber composition of Bansal et al. with the motivation of using a nonwoven sheet exhibiting high strength comprised of low denier fibers melt spun of low viscosity polyester (col. 8, line 66-col. 9, line 5) as disclosed by Bansal et al.

f. The melt flow rates of the polymers used in Perkins et al. and Bansal et al. are not disclosed. However, the viscosities of the polymers of Bansal et al. are taught and anticipate those currently claimed. Melt flow rates and inherent viscosities are closely correlated. Therefore, it would be reasonable to presume that the melt flow rates (MFRs) of Bansal et al. either anticipate those currently claimed or it would have been obvious to optimize the MFRs of Bansal et al. to arrive at those instantly claimed motivated by the desire to use a more easily processed polymer.

g. Unitika discloses a laminated nonwoven fabric comprising extremely fine fibers of 0.7 denier or less [0008] and made up of 70 to 95 weight percent polyester and 5 to 30 weight percent polypropylene. The extremely fine fibers possess a sheath-core orientation and each section is abbreviated, in particular the sheath of the fine fiber. The sheath of the fiber is the primarily polyester [0047]. This provides for the claimed polyolefin discontinuity in the surface of the extremely fine fibers.

h. Since Perkins et al. and Unitika et al. are from the same field of endeavor (i.e. nonwoven fibrous structures), the purpose disclosed by Unitika et al. would have been recognized in the pertinent art of Perkins et al.

i. It would have been obvious at the time the invention was made to a person having ordinary skill in the art to modify the sheath of the microfibers of Perkins et al. with the discontinuous polyolefin phase at the surface of the microfiber with the motivation of providing improved melting and bonding to the adjacent layers while still being pliable.

j. The relative amounts of polyolefin in the microfiber layer and amount of polyester resin in the nonwoven fabric composite are both are result-effective variables affecting the pliability and adhesion of the fibers of the nonwoven as set forth in Unitika. Consequently, absent a clear and convincing showing of unexpected results demonstrating the criticality of the claimed ratio, it would have been obvious to one of ordinary skill in the art to optimize this result-effective variable by routine experimentation. *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977).

k. The applied references are silent as to the starting level of wetting and impregnating of 50mN/m or less when a reagent having a surface tension different from

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the extremely fine fiber nonwoven fabric is dropped thereon, however the invention of combined disclosures would provide for the claimed property as it meets the structural and compositional limitations of the claimed highly pressure-resistant nonwoven fabric.

Response to Arguments

5. Applicant's arguments with respect to claims 1, 2, 5, 6, 10 and 12-17 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MATTHEW D. MATZEK whose telephone number is (571)272-2423. The examiner can normally be reached on M-F, 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on 571.272.1478. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Matthew D Matzek/
Examiner, Art Unit 1794

/Arti Singh/
Primary Examiner, Art Unit 1794